

WHAT IS CLAIMED IS:

1. A vehicle control apparatus comprising:
  - a first motor-generator operatively coupled to at least one first wheel;
  - a second motor-generator operatively coupled to at least one second wheel that is
  - 5 not connected to the first motor-generator; and
  - a regenerative braking component configured and arranged to perform regenerative braking in which a first braking torque is applied to the first wheel by regeneratively operating the first motor-generator while a second braking torque is applied to the second wheel by regeneratively operating the second motor-generator,
  - 10 the regenerative braking component configured and arranged to include
    - an ideal front-rear wheel distribution ratio calculating section configured and arranged to calculate an ideal front-rear wheel distribution ratio between the first braking torque applied to the first wheel and the second braking torque applied to the second wheel;
    - 15 a distribution allowance calculating section configured and arranged to calculate a distribution allowance of the ideal front-rear wheel distribution ratio; and
    - a distribution ratio correcting section configured and arranged to correct the ideal front-rear wheel distribution ratio within a range of the distribution allowance to increase electric power generation efficiency of at least one of
    - 20 the first and second motor-generators.
2. The vehicle control apparatus as recited in claim 1, further comprising:
  - a vehicle speed detecting section configured and arranged to a vehicle speed, and
  - a braking torque calculating section configured and arranged to calculate a required
  - 25 braking torque based on a deceleration request, and
  - the distribution ratio correcting section being further configured to correct the ideal front-rear wheel distribution ratio based on the vehicle speed detected and the required braking torque calculated.

3. The vehicle control apparatus as recited in claim 2, wherein the regenerative braking component is further configured to include a drive mode detecting section to determine if selection of one of a two-wheel drive mode and a four-wheel drive mode; and

5 the distribution allowance calculating section is further configured to calculate the distribution allowance differently depending on which of the two-wheel drive mode and the four-wheel drive mode has been determined to be selected.

4. The vehicle control apparatus as recited in claim 3, further comprising  
10 an engine configured and arranged to drives one of the first and second wheels.

5. The vehicle control apparatus as recited in claim 4, wherein the regenerative braking component includes a braking device configured to apply a brake torque to at least the first and second wheels such that the electric power  
15 generation efficiency of at least one of the first and second motor-generators is increased.

6. The vehicle control apparatus as recited in claim 1, wherein the regenerative braking component is further configured to include a drive mode detecting section to determine if selection of one of a two-wheel drive mode and a four-wheel drive mode; and  
20 the distribution allowance calculating section is further configured to calculate the distribution allowance differently depending on which of the two-wheel drive mode and the four-wheel drive mode has been determined to be selected.

7. The vehicle control apparatus as recited in claim 1, further comprising  
25 an engine configured and arranged to drives one of the first and second wheels.

8. The vehicle control apparatus as recited in claim 1, wherein the regenerative braking component includes a braking device configured to apply  
30 a brake torque to at least the first and second wheels such that the electric power generation efficiency of at least one of the first and second motor-generators is increased.

9. A vehicle control apparatus comprising:

first motor-generator means for driving at least one first wheel and for generating electricity from the first wheel;

5 second motor-generator means for driving at least one second wheel that is not connected to the first motor-generator means and for generating electricity from the second wheel; and

regenerative braking means for performing regenerative braking in which a first braking torque is applied to the first wheel by regeneratively operating the first motor-generator means while a second braking torque is applied to the second wheel by  
10 regeneratively operating the second motor-generator means,

the regenerative braking means being configured and arranged for

calculating an ideal front-rear wheel distribution ratio between the first braking torque applied to the first wheel and the second braking torque applied to the second wheel;

15 calculating an allowance of the ideal front-rear wheel distribution ratio; and correcting the ideal front-rear wheel distribution ratio within a range of the distribution allowance to increase electric power generation efficiency of at least one of the first and second motor-generators.

20 10. A method of vehicle control apparatus comprising:

first motor-generator means for driving at least one first wheel and for generating electricity from the first wheel;

25 second motor-generator means for driving at least one second wheel that is not connected to the first motor-generator and for generating electricity from the second wheel; and

performing regenerative braking in which a first braking torque is applied to at least one first wheel by regeneratively operating a first motor-generator while a second braking torque is applied to at least one second wheel that is not connected to the first motor-generator by regeneratively operating a second motor-generator,

30 calculating an ideal front-rear wheel distribution ratio between the first braking torque applied to the first wheel and the second braking torque applied to the second wheel; calculating an allowance of the ideal front-rear wheel distribution ratio; and

correcting the ideal front-rear wheel distribution ratio within a range of the distribution allowance to increase electric power generation efficiency of at least one of the first and second motor-generators.